Trend Study 9-17-00

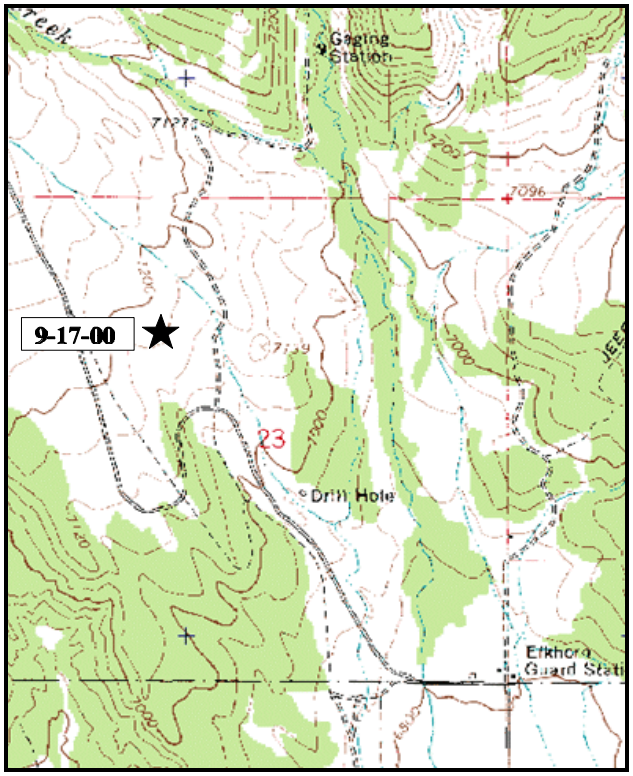
Study site name: Farm Creek . Range type: Big Sagebrush-Grass .

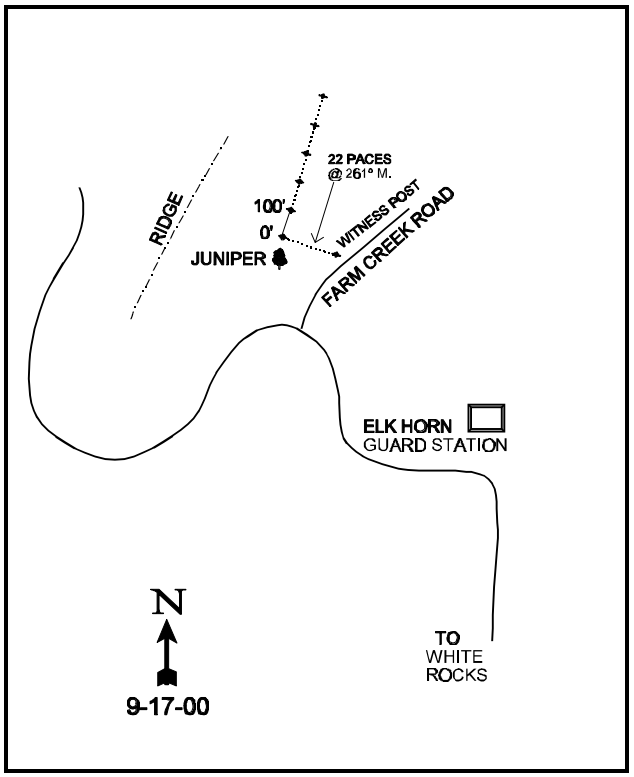
Compass bearing: frequency baseline 322°M .

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

LOCATION DESCRIPTION

From the Elk Horn Guard Station located North of White Rocks, continue on USFS road #117 to the Farm Creek Road for 1 mile. At the first switchback turn right (north) and travel 0.1 miles to the witness located on the left (west) side of the road. From the witness walk 22 paces at 261°M to the 0 foot baseline stake.





Map Name: Ice cave Peak Diagrammatic Sketch

Township 2N , Range 1W , Section 23 UTM 4490101.235 N, 587599.836 E

DISCUSSION

Trend Study No. 9-17 (12-10)

The Farm Creek study was established in 1995 to replace the trend study in Cart Hollow which is now inaccessible with a road exclosure. This site monitors a sagebrush grass type on Forest Service land. Elevation at the site is approximately 7,100 feet with a southern exposure and slope of 6% to 8%. The area is considered winter range, but current use by big game is light. Pellet group transect data taken along the baseline in 2000 estimate 27 deer days use/acre (66 ddu/ha) and 8 elk days use/acre (20 edu/ha). Livestock use is estimated at 15 cow days use/acre (36 cdu/ha). This area is in the Farm Creek allotment which is grazed by cattle on a 4-unit rest-rotation system from June 11 to September 10. Quadrat frequency of deer, elk, and cow pellets are all less in 2000 compared to 1995.

Soils are sandy loam in texture and very rocky in the profile. Effective rooting depth is estimated at just over 10 inches. Rooting depth does not appear be restricted as mountain big sagebrush, a deep rooted species, is dominant on the site. Bare ground is low at an estimated 7% in 1995, increasing to 12% in 2000. Vegetation and litter are abundant, with mountain big sagebrush, bitterbrush and crested wheatgrass dominating the site. Pedestaling of soil around bunch grasses is minimal, increasing slightly around sagebrush stems.

The dominant browse is mountain big sagebrush, with bitterbrush also being fairly abundant. These two species combine to provide over 95% of the total browse cover on the site and nearly half of the total vegetative cover. Mountain big sagebrush has an estimated cover of 15% and a population density of 3,560 plants/acre in 2000. Sagebrush recruitment slightly increased from 8% to 11% in 2000, while percent decadency shows a large increase from 1% to 29%. Use on sagebrush is light to moderate so this increase in decadency can be attributed to drought. Other sagebrush sites in the region also show an increase in decadency in 2000 with the dry conditions. The proportion of decadent plants classified as dying is relatively low (40 plants/acre), with numbers of young plants being adequate to replace this class of plants. Sagebrush vigor remains good. Average leader growth on sagebrush is only 1 inch in 2000.

The more preferred antelope bitterbrush had an estimated population of about 2,100 plants/acre in 1995 and 2000. These shrubs have a prostrate growth form averaging 19 inches in height and a crown of 42 inches. Use is moderate to heavy but bitterbrush can tolerate heavier levels of use than sagebrush. With a low amount of deer and elk sign on this site in 2000, some of the use on bitterbrush is likely from livestock. Vigor remains mostly good, with percent decadency stable at 13%. Bitterbrush seedlings are rare, but recruitment from young plants is good at 16% and 9% in 1995 and 2000 respectively. Average leader growth is between 2-3 inches in 2000, with moderate seed production. Other browse found on the site consist of pricklypear cactus, mountain low rabbitbrush and broom snakeweed.

Crested wheatgrass dominates the understory by providing almost 27% average cover in 2000, representing 92% of the herbaceous cover. Crested wheatgrass is vigorous and was sampled in 94% and 99% of the quadrats in 1995 and 2000 respectively. Bulbous bluegrass is the second most abundant grass. This species significantly decreased in nested frequency in 2000 and only provides about 1% cover. Forbs are diverse but not abundant as they provide under 2% average cover in 1995 and 2000. Sum of nested frequency of perennial forbs decreased by 57% in 2000. With the dry conditions in 2000, the decrease in forb frequency has been seen in most other sites in this management unit as well.

1995 APPARENT TREND ASSESSMENT

The soil trend appears stable as long as vegetation and litter cover remain high. No erosion is currently occurring. The browse trend appears stable for mountain big sagebrush due to low decadency rates, the lack of dead plants, and adequate numbers of seedlings and young. Trend for bitterbrush also appears stable. Use is mostly moderate and decadency rates low (13%). The herbaceous understory is in good condition but species composition is poor. The seeded species, crested wheatgrass, is abundant but the other perennial grasses are rare. Forbs are diverse but scarce.

2000 TREND ASSESSMENT

Trend for soil is stable. Protective cover from vegetation and litter are abundant. Bare ground is relatively low. Trend for browse is stable. Mountain big sagebrush experienced a large increase in decadency from 1% to 29%, but with only light use, this increase is drought related. Recruitment is good at 11%. Bitterbrush is stable in density and decadency. It has moderate recruitment numbers at 9%. Vigor is good for both species. Trend for the herbaceous understory is stable. Although sum of nested frequency of perennial forbs significantly decreased in 2000, forbs only provide 3% of the vegetative cover on the site and this decrease does not warrant a downward trend. Nested frequency of the dominant species, crested wheatgrass, increased which counters the loss of perennial forbs.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - stable (3)

HERBACEOUS TRENDS --
Herd unit 09 , Study no: 17

Type	Species	Nested Frequency '95	Nested Frequency '00	Quadrat Frequency '95	Quadrat Frequency '00	Average Cover % '95	Average Cover % '00
G	Agropyron cristatum	387	405	94	99	17.89	26.90
G	Agropyron dasystachyum	3	8	1	5	.00	.05
G	Bromus tectorum (a)	17	*-	5	-	.05	-
G	Poa bulbosa	85	*51	28	20	2.67	.85
G	Poa fendleriana	5	8	2	3	.06	.04
G	Poa pratensis	5	-	1	-	.03	-
G	Poa secunda	2	-	1	-	.00	-
Total for Annual Grasses		17	0	5	0	0.05	0
Total for Perennial Grasses		487	472	127	127	20.67	27.85
Total for Grasses		504	472	132	127	20.72	27.85
F	Allium spp.	20	*-	13	-	.06	-
F	Antennaria rosea	-	4	-	1	-	.38
F	Arabis spp.	14	*3	8	1	.06	.00
F	Artemisia ludoviciana	27	*7	11	3	.18	.18

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'95	'00	'95	'00	'95	'00
F	Astragalus convallarius	7	2	4	1	.21	.03
F	Balsamorhiza hookeri	4	3	2	2	.01	.06
F	Castilleja linariaefolia	1	-	1	-	.00	-
F	Conyza canadensis (a)	6	-	2	-	.01	-
F	Collomia linearis (a)	48	*-	22	-	.16	-
F	Collinsia parviflora (a)	-	4	-	1	-	.00
F	Cryptantha spp.	5	-	2	-	.01	-
F	Draba reptans (a)	64	*1	22	1	.11	.00
F	Erigeron eatonii	-	6	-	2	-	.01
F	Erigeron flagellaris	4	*13	1	6	.00	.22
F	Eriogonum racemosum	10	4	6	3	.14	.07
F	Heterotheca villosa	12	*5	4	2	.33	.18
F	Lappula occidentalis (a)	9	*-	4	-	.02	-
F	Lactuca serriola	2	-	1	-	.00	-
F	Lepidium densiflorum (a)	55	*-	24	-	.17	-
F	Lithospermum ruderale	-	4	-	2	.03	.18
F	Lomatium spp.	3	-	2	-	.01	-
F	Lupinus argenteus	-	4	-	3	-	.04
F	Microsteris gracilis (a)	1	-	1	-	.00	-
F	Orobanche spp.	2	-	1	-	.00	-
F	Phlox longifolia	14	*-	4	-	.02	-
F	Polygonum douglasii (a)	49	*-	20	-	.12	-
F	Schoencrambe linifolia	9	*-	3	-	.01	-
F	Sphaeralcea coccinea	21	11	7	4	.10	.12
F	Tragopogon dubius	1	-	1	-	.00	-
F	Trifolium gymnocarpon	9	3	5	1	.05	.03
F	Zigadenus paniculatus	1	2	1	1	.00	.00
Total for Annual Forbs		232	5	95	2	0.60	0.00
Total for Perennial Forbs		166	71	77	32	1.30	1.51
Total for Forbs		398	76	172	34	1.90	1.52

* Indicates significant difference at % = 0.10

BROWSE TRENDS --
Herd unit 09 , Study no: 17

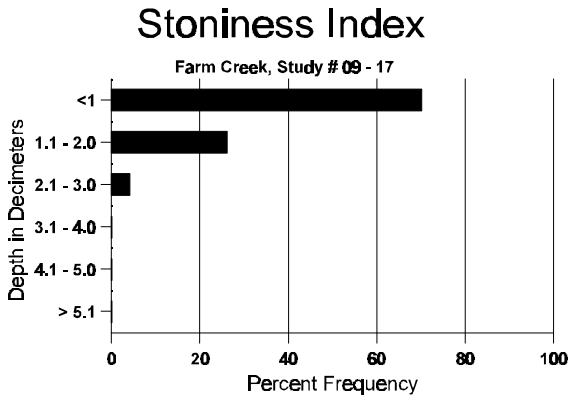
Type	Species	Strip Frequency '95	Strip Frequency '00	Average Cover % '95	Average Cover % '00
B	Amelanchier alnifolia	1	1	-	-
B	Artemisia tridentata vaseyana	66	77	13.01	15.14
B	Chrysothamnus viscidiflorus lanceolatus	2	0	-	-
B	Gutierrezia sarothrae	14	26	.04	.88
B	Opuntia spp.	21	18	.39	.16
B	Pediocactus simpsonii	2	1	-	-
B	Purshia tridentata	51	54	6.77	11.37
Total for Browse		157	177	20.23	27.55

BASIC COVER --
Herd unit 09 , Study no: 17

Cover Type	Nested Frequency '95	Nested Frequency '00	Average Cover % '95	Average Cover % '00
Vegetation	445	417	45.22	52.87
Rock	268	197	10.75	10.65
Pavement	135	89	.50	.92
Litter	490	465	56.27	58.82
Cryptogams	36	57	.39	1.21
Bare Ground	225	227	7.24	11.98

SOIL ANALYSIS DATA --
Herd Unit 09, Study # 17, Study Name: Farm Creek

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
10.58	63.4 (11.02)	6.8	58.9	22.8	18.3	3.7	19.2	211.2	1.0



PELLET GROUP FREQUENCY --
Herd unit 09 , Study no: 17

Type	Quadrat Frequency '95	Quadrat Frequency '00	Pellet Transect: Pellet Groups per Acre '00	Pellet Transect: Days Use per Acre (ha) '00
Rabbit	10	16	574	N/A
Elk	4	2	104	8 (20)
Deer	9	2	348	27 (66)
Cattle	22	11	174	15 (36)

BROWSE CHARACTERISTICS --
Herd unit 09 , Study no: 17

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Amelanchier alnifolia																		
M	95	-	-	1	-	-	-	-	-	-	-	-	1	-	20	8	22	1
	00	-	-	-	-	-	-	1	-	-	1	-	-	-	20	22	27	1
% Plants Showing		Moderate Use		Heavy Use		Poor Vigor									%Change			
	'95	00%		100%		100%									+ 0%			
	'00	00%		00%		00%												
Total Plants/Acre (excluding Dead & Seedlings)													'95		20	Dec:		-
													'00		20			-
Artemisia tridentata vaseyana																		
S	95	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
	00	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
Y	95	9	-	-	3	-	-	-	-	-	12	-	-	-	240			12
	00	17	2	-	-	-	-	-	-	-	19	-	-	-	380			19
M	95	95	33	-	2	-	-	-	-	-	130	-	-	-	2600	24	41	130
	00	103	3	-	2	-	-	-	-	-	108	-	-	-	2160	28	39	108
D	95	-	-	1	-	-	-	-	-	-	1	-	-	-	20			1
	00	17	29	-	5	-	-	-	-	-	49	-	-	2	1020			51
X	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
% Plants Showing		Moderate Use		Heavy Use		Poor Vigor									%Change			
	'95	23%		.69%		00%									+20%			
	'00	19%		00%		01%												
Total Plants/Acre (excluding Dead & Seedlings)													'95		2860	Dec:		1%
													'00		3560			29%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus viscidiflorus lanceolatus																		
Y	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	95	5	-	-	1	-	-	-	-	-	6	-	-	-	120	14	23	6
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	15	28	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'95	140	Dec:	-
	'00	0		-

Gutierrezia sarothrae																		
S	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	95	25	-	-	-	-	-	-	-	-	25	-	-	-	500	9	12	25
	00	110	-	-	-	-	-	-	-	-	110	-	-	-	2200	7	8	110
D	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'95	00%	00%	00%	+78%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'95	500	Dec:	0%
	'00	2280		2%

Opuntia spp.																		
S	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
M	95	52	-	-	1	-	-	-	-	-	53	-	-	-	1060	5	9	53
	00	27	-	-	1	-	-	-	-	-	28	-	-	-	560	2	9	28
D	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	2	-	-	1	-	-	-	-	-	2	-	-	1	60			3

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'95	00%	00%	00%	-36%
'00	00%	00%	03%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'95	1060	Dec:	0%
	'00	680		9%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Pediocactus simpsonii																		
M	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40	2	3	2
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	2	3	1
% Plants Showing		'95		Moderate Use 00%			Heavy Use 00%			Poor Vigor 00%					%Change -50%			
		'00		00%			00%			00%								
Total Plants/Acre (excluding Dead & Seedlings)													'95		40	Dec:		-
													'00		20			-
Purshia tridentata																		
S	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
Y	95	10	7	-	-	-	-	-	-	-	17	-	-	-	340			17
	00	2	2	1	1	-	-	3	-	-	9	-	-	-	180			9
M	95	3	31	33	4	2	1	-	-	-	74	-	-	-	1480	13	37	74
	00	11	31	18	-	18	-	5	-	-	83	-	-	-	1660	19	42	83
D	95	-	3	9	-	2	-	-	-	-	13	-	-	1	280			14
	00	-	9	3	-	-	-	-	-	-	10	-	-	2	240			12
X	95	-	-	-	-	-	-	-	-	-	-	-	-	-	280			14
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	60			3
% Plants Showing		'95		Moderate Use 43%			Heavy Use 41%			Poor Vigor .95%					%Change - 1%			
		'00		58%			21%			02%								
Total Plants/Acre (excluding Dead & Seedlings)													'95		2100	Dec:		13%
													'00		2080			12%